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TABLE OF CONTENTS

Straight from Headquarters 404
Diluting Solutions in the Preparation of Adjusted Solutions 406
Facts on Peptic Ulcers 411
Personnel Relations in the Pharmacy 412
For Cosmetic Use: A Lotion Containing Lanolin .. 415
Prescription Information Service 417
Typical Days 420

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STRAIGHT FROM HEADQUARTERS

by ROBERT P. FISCHELIS, Secretary
AMERICAN PHARMACEUTICAL ASSOCIATION

KEY MEN IN PHARMACY SHOULD BE CAREER MEN

AMONG the key positions in American pharmacy today the secretaryships of state boards of pharmacy and of state pharmaceutical associations rank very high. The secretary of a board of pharmacy should be a person with more than average training in pharmacy and pharmaceutical science. He must be a student of government and should have some basic training in the science of government. Training in law is helpful but not nearly so important as a knowledge of how the state government, of which he is a part, functions as a whole. Knowledge of what is ordinarily referred to as "politics" is not to be confused with a background of training in the art and science of government. The board of pharmacy secretary has need for a background in statesmanship; it is not necessary for him to have experience in ward politics. Such experience is only valuable to keep the secretary alert to what may happen; it is not something that should be practiced by career men in government, even though they may be subject to its vicissitudes. It is statesmanship that is required by key men in the government who make a career of government. True enough, they sometimes suffer by adhering to principles and ideals but in the long run it is more important to American pharmacy that they represent the principles of good government and good pharmacy than that they dabble in ordinary political activities. Pharmacy must protect these career men once they have been trained and placed. It is unfortunately true that boards of pharmacy in many states are appointed on a political basis and the great turnover in board members each year indicates to what extent this is so. In view of this fact and in view of the very slight possibility of any immediate change in this situation it becomes all the more important that the central figure in the administration of pharmacy laws, namely the board of pharmacy secretary, should be a permanent official unaffected by the tides of politics.

The state pharmaceutical association secretary should likewise be a highly trained man or woman with a pharmaceutical background that should preferably include more than one branch of pharmacy. He should have had formal training, if possible, in organization work and in government. The state pharmaceutical association secretary must perforce deal with government at all levels since his employers, the members of state pharmaceutical associations, are apt to require services touching all of these levels. He certainly must know his own state. He should know what his state does and expects to do for its people. He should guide the program of the state pharmaceutical association in a manner to make it harmonize with the planning of the state. This may at times require pioneering and giving guidance to other organizations within the state because there are states which have no plans of any consequence for their people. However, enlightened government today includes long-range planning and it is amazing to learn how little some of our state pharmaceutical associations know about the general program for the advancement of the interests of the state in which they function.

Of course, the state pharmaceutical association secretary should know people. This does not mean pharmacists exclusively, although he must, of course, know as many of the pharmacists who practice in his state as possible. He must know the important officers and members of other organizations within his state and within his profession. This facilitates contact and exchange of information. He must read the literature of pharmacy, both the professional and the trade literature. He must be discriminating enough not to fall for every project that is advanced by those who have objectives other than the welfare of the pharmacists of the state.

He must know how to use the funds of the association wisely and he must have the confidence of the officers and members of his association

to a sufficient extent to enable him to function between meetings when many important problems arise which have not been specifically cared for at the convention where policies are formulated. It is always wise for state pharmaceutical association secretaries to inquire into the extent to which new proposals have been used or tried elsewhere. Very little that is completely new is suggested to organizations these days. Most of the proposals which come along have been tried and found wanting in other places or they have been the subject of discussion which has led to inaction because of objections that have been raised and which might well apply in the place where the proposal is introduced as "new."

The foregoing paragraphs may sound as though we have to start at the bottom in order to build some of the structure through which American pharmacy expects to function in the future. Unfortunately, this is true to a larger extent than most pharmacists realize. Existing organizations and teaching institutions have done excellent work and there is no doubt that the essential things to keep the profession active at a fair level of efficiency will always be done. However, there are noticeable trends to the effect that key positions and key activities in the profession are passing to persons and organizations which have no basic foundation in pharmacy. Some infiltration of this kind may be helpful but there can be little question that turning over the future program of pharmacy to those who are without a foundation in the profession is not for its best interest.

CLOSING SESSION OF CONGRESS

THE first session of the present Congress is nearing its end as these lines are written. The party now in power has had about seven months in which to take over the machinery which had previously functioned under Democratic control for about fourteen years. Taking over the responsibility for initiating and passing legislation is not as simple as finding fault with what is proposed by those who initiate. Most of the work of the Congress is done in committees and the committees have their research staffs, their administrative clerks and other personnel which change with the complexion of the administration. There are, of course, certain research assistants on the committee rolls whose politics may not even be known and who are looked upon as experts in economics, special kinds of law and technical matters. These are the men and women who furnish the factual background and data upon which members of Congress predicate action on questions which are outside of the political realm. Purely political questions are decided by a partisan vote for the most part. Questions involving economic problems must perforce be considered on merit.

By and large, the new committee personnel and the senators and representatives in charge of committee work have given the impression that it is their desire to get at the facts in a given situation and legislate for the good of the country.

As is frequently the case when new hands and heads must undertake the responsibility for legislation, the period devoted to hearings is apt to be long at the beginning of the session. And it is apt to be much too short near the end of the session when everybody is anxious to expedite legislation and make sure that the bills which have been hanging fire are passed.

There were hundreds of bills introduced in the House and Senate this year in which pharmacy had some interest. There were a few in which we had a major interest. Among the latter we may include a bill to provide a Medical Service Corps in the Army and Navy and the bill extending the powers of the President under the Second War Powers Act which involved removing or continuing controls on such scarce commodities as quinidine. Bills relating to the support of research, education, and the establishment of hospitals in communities not served by such institutions at present constituted some of the major legislation before the Congress.

Bills amending the Food, Drug and Cosmetic Act, the Narcotic Act, and the establishment of a cabinet post to include supervision over health, as well as bills providing for a national health program, were the subject of extensive hearings.

It is too early to determine just what this Congress finally enacted into law which has any effect on the practice of pharmacy or the drug industry. However, we do know, definitely, that legislation to create a Medical Service Corps in the Army and Navy has been passed and that controls over the allocation of cinchona bark, quinine and quinidine have been continued on such portions of these drugs as were held in government stockpiles on July 16.

Diluting Solutions

IN PREPARATION OF ADJUSTED SOLUTIONS

by ALLEN I. WHITE and HUGH C. VINCENT†
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DURING recent years considerable attention has been given to the development of methods for compounding isotonic solutions. The more common and successful methods so far employed and the under ying principles of isotonicity have been well summarized by Brecht.[1] In addition, he has published from data supplied by Husa and Rossi[2] and by Wells[3] a quite complete and accurate table of sodium chloride equivalents to be used in calculations for the manufacture of isotonic solutions according to the method initiated by Mellen and Seltzer.[4]

These methods are more accurate and less cumbersome than the method of Nicola,[5] which had enjoyed some popularity previously, and are simple for the preparation of solutions to be made isotonic. However, if the *p*H of the prescription is to be adjusted in addition to making the solution isotonic, the calculations and manipulations are quite involved and the accurate compounding of a one- or two-ounce prescription becomes difficult. Consequently, the pharmacist in the ordinary pharmacy sometimes avoids rather than seeks prescriptions which call for the adjustment of both tonicity and *p*H. The method herein described provides an easy and quick system for preparing completely adjusted solutions in such a way that the average pharmacist, without analytical balance or special volumetric apparatus, may provide this service.

The basis of the method is the determination of the volume that a solution of the specified amount of medicinal agent (or agents) will occupy if it is made to be isotonic with the appropriate body fluid. If a prescription is capable of being adjusted for tonicity, this volume will be less than that of the total prescription. Then, the rest of the volume of the prescription is made up by the addition of a stock diluting solution that has the same tonicity and which also may be buffered to the desired *p*H.

The use of diluting solutions for convenience in dispensing adjusted solutions has been suggested by Mellen and Seltzer[4] and by Arrigoni, Tozer and Fischer.[6] They suggest that the pharmacist prepare stock solutions having the same or greater concentration than the usual therapeutic concentration of common medicinal agents Thus, when a call is received for any particular substance, the pharmacist measures the quantity of the stock solution necessary to obtain the required amount of drug. Then the stock solution is diluted to volume with an appropriate isotonic solution which may be buffered. However, use of this method is limited by the degree of solubility, the number of stock solutions prepared, and the instability in solution of some substances. Moreover, the manufacture of stock solutions is warranted only in cases of very frequently prescribed drugs.

In the method here discussed the principal step is to determine the volume of an aqueous solution of the prescribed drug(s) that possesses the desired tonicity. This is obtained by the following equation:

$$V = W \times E \times v$$

V = the volume of solution that the medicinal agent will make isotonic

W = the weight of medicinal agent to be dissolved

E = the NaCl equivalent of the medicinal agent (from Table II)

v = the volume in cc. (or minims) occupied by 1 Gm. (or 1 grain) of NaCl in isotonic solutions (from bottom of Table II)

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When more than one active ingredient is involved, the volume of the solution may be calculated by using the formula in the following manner:

$$V = [(W \times E) + (W' \times E') + (W'' \times E'')]v$$

Suggested Diluting Solutions

The nature of the diluting solution may vary according to the desires of the physician and the pharmacist. If the prescription is to be adjusted for tonicity only, the following may be used:

1. For solutions isotonic with tears, a 1.4% solution of sodium chloride.

2. For solutions isotonic with the blood and other body fluids (for example, nasal secretion), Isotonic Sodium Chloride Solution (0.9% NaCl), Ringer's Solution, a 5.6% solution of dextrose, or any other solution of comparable osmotic pressure which may be desirable.

For prescriptions to be adjusted for *p*H as well as tonicity, buffered solutions that have been made isotonic may be used. Arrigoni, Tozer and Fischer[6] have suggested such a diluting solution (*p*H 6.75) for tears, but it implies an accuracy of *p*H that is not easily reproducible and it involves weighing accuracy that cannot be attained in the average pharmacy. Extreme accuracy is not necessary since slight deviations in either osmotic pressure or *p*H are without material effect when solutions come in contact with living tissue. Formulas for buffered and isotonic diluting solutions that may be prepared in any pharmacy are given in paragraphs 3, 4, 5 and 6 below.

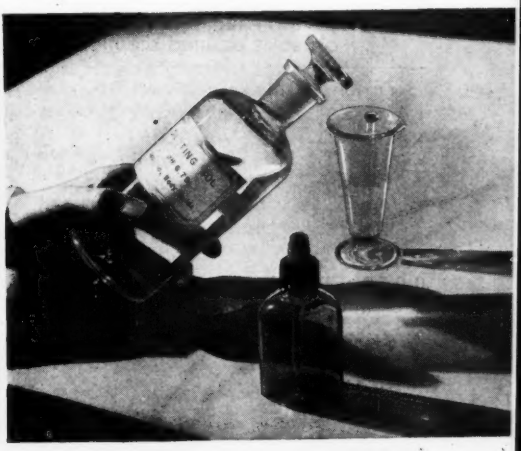
Several samples of each diluting solution have been prepared using a torsion prescription balance and a 1000-ml. volumetric flask for weighing and measuring. Determinations of the *p*H and freezing point of these diluting solutions have been determined. Results are summarized in Table I.

For the preparation of buffer solutions, only the best grade of chemicals should be used. For these experiments, special buffer salts were employed. In order to avoid any variance in weighings due to efflorescence or deliquescence, thoroughly dry, anhydrous salts were chosen. These factors aid in producing solutions having *p*H's within narrow limits from a theoretical *p*H.

3. Diluting solution for collyria, approximate *p*H 6.75.

Potassium phosphate, monobasic	4.28	Gm.
Sodium phosphate (anhydrous)	5.72	Gm.
Sodium chloride	9.37	Gm.
Distilled water, *q. s. ad*	1000	cc.

A BRIEF CALCULATION • MIX WITH WATER • ADD DILUTING SOLUTION



4. Diluting solution for collyria, approximate *p*H 7.4.

Potassium phosphate, monobasic	1.90	Gm.
Sodium phosphate (anhydrous)	8.10	Gm.
Sodium chloride	9.11	Gm.
Distilled water, *q. s. ad*	1000	cc.

5. Diluting solution for injections, nose drops, etc., approximate *p*H 6.75.

Potassium phosphate, monobasic	4.28	Gm.
Sodium phosphate (anhydrous)	5.72	Gm.
Sodium chloride	4.37	Gm.
Distilled water, *q. s. ad*	1000	cc.

6. Diluting solution for injections, nose drops, etc., approximate *p*H 7.4.

Potassium phosphate, monobasic	1.90	Gm.
Sodium phosphate (anhydrous)	8.10	Gm.
Sodium chloride	4.11	Gm.
Distilled water, *q. s. ad*	1000	cc.

7. Isotonic diluting solutions of different *p*H and made with other buffer systems can be prepared as the pharmacist may see fit, such as Gifford's buffer solutions as given in *The Pharmaceutical Recipe Book*.[7] These solutions may be used as diluting solutions alone, or may be mixed in varying proportions according to the directions given in *The Pharmaceutical Recipe Book* to obtain the *p*H requested by the physician. Similarly, the buffer mixtures of Clark and Lubs as outlined in the U. S. P.[8] or Sorensen's buffers[9] may be made isotonic and the solution of the desired *p*H used as a diluting solution. The amount of salt to be added to such buffer solutions to render them isotonic may be calculated by any of the acceptable published methods.

TABLE I—FREEZING POINT AND *p*H DETERMINATIONS ON SOME DILUTING SOLUTIONS

SOLUTION	FREEZING POINT, ° C.	*p*H
1.4% NaCl	−0.80	5.88
No. 3a	−0.81	6.72
b	−0.79	6.70
c	−0.82	6.73
No. 4a	−0.83	7.32
b	−0.82	7.30
c	−0.79	7.34
0.9% NaCl	−0.56	6.18
No. 5a	−0.59	6.78
b	−0.58	6.78
c	−0.56	6.76
No. 6a	−0.55	7.30
b	−0.60	7.38
c	−0.57	7.32

Application to Prescriptions

In the preparation of a prescription to be made isotonic, or buffered and isotonic, the pharmacist performs the following:

1. The volume of solution which the medicinal substance will make isotonic is calculated by use of the equation ($V = W \times E \times v$).

   a. The value for W in the equation is supplied from the prescription. If the amount of medicinal ingredient is specified in per cent, the corresponding weight per volume is used.

   b. The value for E and v is supplied by reference to Table II.

2. The specified amount of medicinal substance is weighed and mixed with sufficient water to make the volume determined in step 1 and the prescription is made up to volume with the desired diluting solution, in an appropriate size graduate. Solution is effected and the product filtered if necessary.

PRACTICAL ILLUSTRATIONS

℞

1% Homatropine HBr ..... 30 cc.

M. Ft. isotonic c̄ NaCl.

Sig. 1% Homatropine HBr Eye Drops.

(1) $V = 0.3 \times 0.19 \times 71.4 = 4.1$.

(2) Mix 0.3 Gm. of homatropine hydrobromide with sufficient distilled water to make 4.1 cc. and then add 1.4% NaCl solution to make 30 cc.

℞

1% Homatropine HBr ..... 60 cc.

M. Ft. isotonic with tears and *p*H 6.75.

Sig. 1% Homatropine HBr Eye Drops *p*H 6.75.

(1) $V = 0.6 \times 0.19 \times 71.4 = 8.2$.

(2) Mix 0.6 Gm. of homatropine hydrobromide with sufficient distilled water to make 8.2 cc. and then add isotonic and buffered

TABLE II—DATA FOR ISOTONIC SOLUTIONS: SODIUM CHLORIDE EQUIVALENTS (VALUES FOR "E")

NOTE: The water of crystallization in each salt corresponds to the official form, unless otherwise specified

Alum (Potassium)	0.19
Alypin Hydrochloride (Amydricaine Hydrochloride)	0.18
Ammonium Chloride	1.13
Amphetamine Sulfate (Benzedrine Sulfate)	0.20
Amylcaine Hydrochloride	0.20
Antipyrine	0.17
Apothesine Hydrochloride	0.19
Atropine Sulfate	0.14
Benzyl Alcohol	0.30
Boric Acid	0.55
Butacaine Sulfate (Butyn Sulfate)	0.10
Caffeine	0.13
Calcium Chloride (no H_2O)	0.73
Calcium Gluconate	0.14
Calcium Lactate	0.21
Camphor	0.21
Chlorobutanol	0.18
Cocaine Hydrochloride	0.19
Cupric Sulfate	0.15
Dextrose	0.16
Diothane Hydrochloride	0.13
Emetine Hydrochloride	0.14
Ephedrine Hydrochloride	0.28
Ephedrine Sulfate	0.19
Epinephrine Hydrochloride	0.26
Ethylhydrocupreine Hydrochloride (Optochin)	0.15
Ethylmorphine Hydrochloride (Dionin)	0.16
Eucatropine Hydrochloride (Euphthalmine)	0.18
Fluorescein Sodium	0.19
Glycerin	0.35
Homatropine Hydrobromide	0.19
Hyoscine Hydrobromide (Scopolamine Hydrobromide)	0.13
Hyoscine Hydrochloride	0.15
Iodophthalein Sodium	0.12
Lactose	0.11
Larocaine Hydrochloride	0.18
Magnesium Chloride ($6H_2O$)	0.42
Magnesium Sulfate	0.20
Menthol	0.21
Mercuric Chloride	0.12
Mercuric Cyanide (no H_2O)	0.14
Mercuric Succinimide	0.14
Methenamine	0.24
Metycaine Hydrochloride	0.20
Mild Silver Protein (Argyrol)	0.19
Morphine Hydrochloride	0.15
Morphine Sulfate	0.12
Neosynephrine Hydrochloride	0.28
Nupercaine Hydrochloride	0.15
Phenacaine Hydrochloride (Holocaine Hydrochloride)	0.16
Phenobarbital Sodium	0.27
Phenol	0.35
Physostigmine Salicylate	0.19
Physostigmine Sulfate	0.12
Pilocarpine Hydrochloride	0.22
Pilocarpine Nitrate	0.21
Potassium Chloride	0.84
Potassium Iodide	0.38
Potassium Nitrate	0.60
Potassium Phosphate, monobasic	0.40
Procaine Hydrochloride	0.24
Propadrine	0.31
Quinine Hydrochloride	0.16
Quinine and Urea Hydrochloride	0.26
Silver Nitrate	0.39
Sodium Acetate* (no H_2O)	0.74
Sodium Benzoate	0.45
Sodium Bicarbonate	0.69
Sodium Biphosphate	0.45
Sodium Borate	0.43
Sodium Bromide	0.62
Sodium Cacodylate	0.30
Sodium Carbonate, monohydrated	0.68
Sodium Chloride	1.00
Sodium Citrate	0.32
Sodium Hypophosphite	0.54
Sodium Iodide	0.38
Sodium Lactate	0.52
Sodium Nitrate (no H_2O)	0.62
Sodium Phosphate* (no H_2O)	0.51
Sodium Phosphate ($2H_2O$)	0.41
Sodium Phosphate ($7H_2O$)	0.27
Sodium Phosphate ($12H_2O$)	0.20
Sodium Salicylate	0.40
Sodium Sulfate	0.28
Sodium Sulfite	0.58
Sodium Thiosulfate	0.31
Strong Protein Silver (Protargol)	0.04
Sucrose	0.10
Sulfadiazine Sodium	0.21
Sulfanilamide	0.20
Sulfapyridine Sodium	0.20
Sulfathiazole Sodium, sesquihydrate	0.19
Syntropan	0.14
Tannic Acid	0.03
Tetracaine Hydrochloride (Pontocaine Hydrochloride)	0.19
Tutocaine Hydrochloride (Butamin)	0.20
Urea	0.54
Zinc Chloride	0.60
Zinc Phenolsulfonate	0.15
Zinc Sulfate	0.15

VALUES FOR "v"

1. For calculation in the metric system:
   - a. Parenteral injections, nasal preparations, etc. 111.1
   - b. Collyria 71.4
2. For calculation in the apothecary system:
   - a. Parenteral injections, nasal preparations, etc. 117.6
   - b. Collyria 75.0

* The sodium chloride equivalents are taken from the tables by Brecht[1] or Wells[3] except those with an asterisk which have been calculated by the authors.

TABLE III—FREEZING POINT AND pH DETERMINATIONS ON SOME PRESCRIPTION SOLUTIONS

		Freezing Point*			pH*		
	Solution for Tears	1	2	3	1	2	3
1%	Homatropine Hydrobromide	−0.78	−0.82	−0.83	4.88	6.72	6.72
2%	Homatropine Hydrobromide	−0.79	−0.79	−0.83	5.84	6.72	6.72
1%	Pilocarpine Nitrate	−0.78	−0.80	−0.81	4.72	6.53	6.58
1%	Ethylmorphine Hydrochloride	−0.86	−0.78	−0.82	5.86	6.71	6.72
2%	Cocaine Hydrochloride	−0.84	−0.80	−0.79	5.18	6.59	6.61
1%	Atropine Sulfate	−0.77	−0.85	−0.84	6.10	6.72	6.72
	Solution for Blood or Nose						
1%	Procaine Hydrochloride	−0.57	−0.56	−0.57	5.98	6.78	6.78
1%	Metycaine Hydrochloride	−0.57	−0.58	−0.64	6.38	6.78	6.78
1%	Ephedrine Hydrochloride	−0.58	−0.59	−0.60	6.12	6.78	6.71
1%	Ephedrine Sulfate	−0.57	−0.57	−0.56	6.28	6.78	6.78
2.5%	Dextrose	−0.58	−0.57	−0.60	6.45	7.28	7.28

* The three columns listed under freezing point and *p*H refer to solutions made as follows:
1: 1.4% NaCl (for tears, freezing point −0.80, *p*H 5.88) or 0.9% (for blood or nose, freezing point −0.56, *p*H 6.18) was used as diluting solution and a 50-cc. cylindrical graduate used for measurements.
2: Solution 3 (for tears, freezing point −0.81, *p*H 6.72) or 5 (for blood or nose, freezing point −0.59, *p*H 6.78) was used as diluting solution and a 50-cc. cylindrical graduate used for measurements.
3: The same as 2 except that a 60-cc. prescription graduate was used for measurements.

diluting solution with *p*H 6.75 (see diluting solution No.3) to make 60 cc.

℞

Neosynephrine HCl.....	0.3 Gm.
Chlorobutanol.....	0.2 Gm.
Distilled water, *q. s. ad*.....	60.0 cc.

M. Ft. Isotonic and buffered nose drops (*p*H 6.75).
Sig. Nose Drops.

(1) $V = (0.3 \times 0.28) + (0.2 \times 0.18) \times 111.1 = 13.3$.

(2) Mix 0.3 Gm. of neosynephrine hydrochloride and 0.2 Gm. of chlorobutanol with sufficient distilled water to make 13.3 cc. and then add isotonic and buffered diluting solution with *p*H 6.75 (see diluting solution No. 5) to make 60 cc.

If a prescription is written in the apothecary system, the appropriate value for v is chosen from the table and the value for V is expressed as minims.

℞

Zinc Sulfate.....	gr i
Boric Acid.....	gr x
Distilled water, *q. s. ad*.....	℥ i

M. Ft. Isotonic with NaCl.
Sig. Eye Drops.

(1) $V = (1 \times 0.15) + (10 \times 0.55) \times 75 = 423.8$.

(2) Mix the zinc sulfate and boric acid with sufficient distilled water to make 423.8 minims (practically ℥ vii) and then add 1.4% NaCl solution to make 1 ℥.

ACCURACY OF METHOD.—Because of mechanisms in body fluids and tissues to adjust any slight deviation in *p*H and osmotic pressure from the normal state, extreme accuracy is not required for practical purposes in isotonic and buffered solutions. Furthermore, when a medicinal solution has its *p*H adjusted at some other point than the normal *p*H of the body fluid, it is usually because better therapeutic action is obtained at that *p*H or because the drug is more stable at that *p*H. In either case, deviation by at least several tenths of a *p*H on either side of an optimum is without appreciable effect.

It should not be concluded, however, that reasonable accuracy is not necessary. Nor should accuracy be sacrificed for convenience and speed. For this reason, the method proposed was checked to determine the *p*H of diluting solutions suggested above, and to test their buffering action on some of the more common medicinal agents prescribed in solutions which might well be buffered and isotonic. Table III presents the results of these experiments and indicates that the method is sufficiently accurate for practical purposes.

To show the effect of the buffered solutions, controls were made using a corresponding isotonic solution of sodium chloride. A torsion prescription balance was used for all weighings and 10-ml. and 100-ml. cylindrical graduates or comparable size prescription graduates were used for all measurements. In the manufacture of 1-liter quantities of the diluting solutions, a 1000-ml. flask was used to provide a greater degree of accuracy than graduates would.

PRESERVATION.—To protect solutions to be used in the eyes from the growth of molds and other microorganisms, preserved distilled water has been suggested as a solvent by Arrigoni, Tozer and Fischer.[6] The formula is as follows:

Methyl-*p*-hydroxybenzoate..	0.26	Gm.
Propyl-*p*-hydroxybenzoate..	0.14	Gm.
Distilled water, *q. s. ad*.....	1000	cc.

However, the value of the various esters of *p*-hydroxy benzoic acid for the preservation of eye drops has been disputed by Spengler and Kessler.[10]

Solutions to be instilled into the eyes, nose or other body cavities usually need not be sterile, but the use of sterile diluting solutions would decrease predisposition to mold growth and prevent the possible addition of infecting organisms into an already diseased location. Sterilization of the distilled water and the diluting solutions can be carried out by autoclaving.

Summary

An equation has been devised to be used for the rapid extemporaneous preparation of buffered and isotonic prescription solutions. The method was designed to be of value to the average pharmacist without an analytical balance or special volumetric apparatus.

The basis of the method is that the specified medicinal agent or agents are dissolved in a sufficient amount of water to make a solution of the desired tonicity; this solution is then made up to volume with a stock diluting solution that has the same tonicity and has been buffered to the desired *p*H.

Diluting solutions have been prepared for use in making medicinal preparations for the eye or nose, or for injection into various parts of the body. They have been used in the preparation of typical prescriptions, and the *p*H and tonicity of the resulting solutions have been determined.

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FACTS ON PEPTIC ULCERS

FROM 5 to 12% of the population become afflicted with ulcers during a modern lifetime, according to Dr. Andrew C. Ivy, physiologist and executive vice-president of the professional schools of the University of Illinois. Peptic ulcer ranks tenth among the chronic diseases as a cause of death and twelfth as a cause of days lost from work. From a recent study Dr. Ivy presents the following facts concerning the problem of peptic ulcer:

The death rate per 100,000 in the United States from peptic ulcer increased from 2.7 in 1900 to 6.8 in 1943.

The death rate in men for both gastric and duodenal ulcer has increased since 1920, whereas that for women has decreased.

More people die from gastric than from duodenal ulcers.

Ninety per cent of the cases of peptic ulcer are first diagnosed after the age of 20.

The most discouraging characteristic of peptic ulcer is its likelihood to recur.

The adherence to a strict therapeutic regimen solely is not certain to help, unless the patient is able to live a "calm life."

The results of years of peptic ulcer study have provided the blocks of a jigsaw puzzle which at present cannot be fitted together to provide an adequate picture of the cause or causes.

Data support the commonly expressed statement that "chronic" duodenal or gastric ulcer in man usually heals rapidly under conditions of strict medical management.

A physician should not be too hasty in accepting a casual relationship between social stress and peptic ulcer, remembering that the Abyssinians and the Hindus of southern India have a high incidence of gastric ulcer.

Most patients with ulcer will not learn to live a "calm life" and remain on a strict regimen.

Physical and mental rest is an important "favorable condition" for healing "chronic" ulcer.

Surgical methods for the prevention of ulcer recurrences are to be considered as stopgaps, until some more effective medical method is discovered. —*J. Am. Med. Assoc. 132: 1053, 1946*

Personnel Relations

IN THE PHARMACY

by E. N. BEESLEY*

"THE most dynamic element that management deals with is its people." Packed into that statement by Alvin E. Dodd, president of the American Management Association, are the reasons why I welcome the opportunity to discuss personnel relations before the Section on Pharmaceutical Economics of the AMERICAN PHARMACEUTICAL ASSOCIATION. One of the greatest needs of those in charge of the average enterprise today is a better realization of the potentialities of Mr. Dodd's statement. For example, consider two competing pharmacies. They may have equally good locations, rental terms, and stocks. A most invariably it is the one with the higher caliber employees, whose morale is of the best, that gets ahead.

In considering what good personnel relations can do in the profession of pharmacy it might be well to have first a definition. One of the textbooks on the subject states that "personnel management is simply one phase or aspect of the general field of management. In that sense it plays an important part in all types of modern business management, in retail as well as wholesale merchandising, in manufacturing and transportation, in banking and education, in short in every situation where certain individuals entrusted with the duties of management seek to secure and maintain the efficient cooperation of other persons who perform the functions of the enterprise."

Therefore, no matter in what occupation you are engaged if you have one or more employees working for you, you are engaged in personnel work; and all of you no doubt, at one time or another, have your personnel problems. The only differences the size of an organization creates are the number and complexity of the problems, and the fact that if you have only one employee you handle the problems yourself, whereas if you have several hundred employees you probably have someone else do your worrying for you.

Why have personnel relations become so important during recent years? It has been the result of the increasing awareness that a business succeeds or fails usually because of the people who make up that organization. If they are happy in their work and proud of it; if they are well trained; if they feel they are being fairly compensated and have good working conditions, the chances are that the business will be successful.

That is the primary reason I think the subject of personnel relations in pharmacy is well worth taking the time to discuss. A less important reason is that in recent years the trend has been for employees, usually where these desirable conditions do not exist, to organize and to force employers to give them some or all of the conditions of work which they want.

Our thinking has gone through a great evolution on this subject To illustrate, let me quote an advertisement that appeared in a New York paper in 1835:

Twenty Dollars Reward

Ran away from the subscriber on Thursday morning last, John Whittaker, an indented apprentice to the brass casting and finishing trade. Had on when he left his boarding house a new hat and a blue roundabout. The said John Whittaker has a brother in New Orleans and is supposed to

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Presented to the Section on Pharmaceutical Economics, AMERICAN PHARMACEUTICAL ASSOCIATION, 1946 meeting.

* Director, Personnel Relations Division, Eli Lilly and Company, Indianapolis, Indiana.

want to make his way thither. He is about sixteen years of age, straight short hair, rather sharp gray eyes, aquiline nose, and sallow complexion.

All persons are forbid harboring the said lad under the penalty of the law. The above reward will be paid to any person who may give a clue to him so that he may be recovered.

(Signed) L. LEWIS
53 White Street, New York
August 17, 1835

Certainly we would not think of running such an ad today when we lost an employee.

In considering how we can capitalize on the dynamic element which our employees represent, and to which Mr. Dodd referred, the first point I should like to emphasize is the importance of the human relations factor in business. To understand people is to know how to treat them so as to get the response and the results we want. Failure to understand the motives which make men work, their hopes and ambitions, their prejudices and shortcomings, is responsible for most of the problems in modern management.

Why do men work? What is it they want in life? Is it merely the right to earn a living, to make money? Is that the glue that binds the business organization together? Many managers think it is and base their whole philosophy of management upon that theory, but numerous studies of human motives disprove it.

Men and Their Motives

Today we know the thing that men want more than any other one thing is security. They want to feel that their livelihood is secure, that when the time comes to lay down their work in the twilight of life they will not want, or become objects of, charity. Other things they want are:

1. The right to feel that they are important to the organization of which they are a part.

2. The knowledge that the boss knows they are around and is interested in their welfare and success.

3. Appreciation for the things they do well, for the extra effort they put forward to further the success of the enterprise. This appreciation need not be monetary, but it must be some form of recognition.

4. Treatment which will enable them to maintain self-respect. Deep within every human being is the desire to "be somebody." This is not just vanity. It is the pride we all have in whatever we do.

5. Understanding on the part of those in authority for the personal problems which engage our thought and attention. To be sure, these may seem trivial and immaterial to others, but to us they are very important indeed.

These are all things that do not cost money, but they are very important in building a successful organization. Perhaps we should remember that when John D. Rockefeller was asked to what he most attributed his business success, he replied: "To others."

The second point I shall stress in connection with using this dynamic force to the best advantage is the need for adequate information concerning the conditions of work in pharmacy and how these compare with other similar businesses and professions. If such material were available it should be a definite aid to pharmacy owners in making decisions concerning personnel policies which they wish to consider for possible adoption.

The group headed by Dr. E. C. Elliott expected, I believe, to include these matters in The Pharmaceutical Survey. I should like to urge that such studies be broad enough to give full and conclusive information. It would be very helpful if up-to-date data could be made available on a continuing basis. While there are many such subjects that merit attention, I shall mention briefly only five of them.

First is the all-important subject of wage and salary rates. Compensation in all lines of business is the highest today it has ever been, and pharmacy is no exception. We have studies which indicate the percentage of total sales volume which a pharmacy owner can afford to pay in wages and salaries. However, to the best of my knowledge, at the present time there is no information readily available that indicates how the resulting incomes compare with those that can be earned in comparable businesses and professions. In order that we may know whether pharmacy is keeping abreast of the changes in the levels of compensation that are taking place, studies in this field would be a very worth-while contribution.

A second matter that might be considered is the question of whether some type of incentive pay should be added to regular wage and salary rates. If so, what percentage

of total compensation should it represent? What is the best type? Should it be some form of commission on sales? Should it be based on profits? Should it have any relation to the regular wage or salary or to length of service? If some plan for incentive pay is to be set up, who should participate?

Another question is whether wage and salary rates should bear any relation to the hours worked. The Fair Labor Standards Act forces businesses engaged in interstate commerce to pay time and one-half for all hours in excess of forty in one week. It is certainly not necessary for pharmacies to follow this pattern, but should not careful consideration be given to the question of whether rates of pay should be influenced in some degree by the hours of work?

A fourth and most important point for study is: Is it feasible to consider a further reduction in the hours of work for those engaged in retail pharmacy? We realize the problem this question presents, and we know the average hours of work in retail pharmacies have been reduced materially in the last few years. Nevertheless, the hours are still much longer than in most any other type of endeavor. In many other retail fields the pattern set by the Fair Labor Standards Act has been an influential factor in reducing the average hours of work. In fact, according to a study of the Bureau of Labor Statistics of the United States Department of Labor, average hours worked in all lines of retail trade in December, 1945, were 40.1 per week. However, few if any retail pharmacies equal this average.

A fifth point, which might be studied, is whether it is advisable for proprietors of retail pharmacies to make available to their employees some of the plus values that are available to employees of some other, usually much larger, companies, such as group insurance, retirement plans, and definite vacation policies. Many pharmacy proprietors are inclined to dismiss these matters as of little importance, but they are significant factors in keeping employees satisfied and in influencing young people to take up pharmacy as their life's work.

It is apparent that all of these problems, if they are to be considered, necessitate a great amount of study, but they are important to the men and women who comprise the profession of pharmacy and therefore merit careful analysis. If serious consideration is given to them, I venture to predict that the solutions which evolve will contribute greatly to the attractiveness of retail pharmacy for those engaged in it, and for those contemplating joining its ranks, and will help make the average pharmacy a more successful enterprise.

—℞—

MIXTURE KAOLIN WITH PECTIN

A prescription product for use in gastrointestinal disturbances, where the adsorptive qualities of kaolin and the protective and absorptive properties of pectin are desired, is being promoted to physicians by the New Jersey Joint Committee on Professional Relations. The following formula, providing a pleasant-tasting, sugarless preparation, contains 2.92 Gm. of kaolin and 150 mg. of pectin in each tablespoonful dose:

MIXTURE OF KAOLIN WITH PECTIN

Kaolin	20.00 Gm.
Pectin	1.00 Gm.
Tragacanth, powdered	0.50 Gm.
Acid benzoic	0.20 Gm.
Soluble saccharin	0.10 Gm.
Glycerin	2.00 cc.
Oil of peppermint	0.15 cc.
Distilled water, to make	100.00 cc.

Mix the kaolin with 50 cc. of distilled water. Triturate the pectin, soluble saccharin and powdered tragacanth with the glycerin and add to this, with constant stirring, the benzoic acid dissolved in 30 cc. of boiling distilled water. Permit this to stand until cool and all the pectin is dissolved. Add the oil of peppermint and then the kaolin mixture adding enough distilled water to make the required volume.

Philadelphia College
OF PHARMACY AND SCIENCE
Opportunities are greater than ever for young men and women, well-trained in Pharmacy, Chemistry, Bacteriology and Biology, leading to interesting and successful careers. Graduate study in these fields and in Hospital Pharmacy offered. B.Sc., M.Sc., and D.Sc., degree courses. Write for catalog for the 1948 and 1949 sessions.
43rd Street, Kingsessing and Woodland Avenues, Philadelphia 4, Pa. Founded in 1821

FOR COSMETIC USE . . .

A LOTION CONTAINING LANOLIN

by HARRY L. KENDALL† and H. GEORGE DEKAY*

SEVERAL hand and face lotions of the medicinal type have been kept in stock in the Apothecary of the Purdue University School of Pharmacy for dispensing on prescription to university students. Such lotions have been prescribed frequently, but the university physicians requested that a purely cosmetic type of hand and face lotion be kept in stock for those cases that do not need a medicinal type of lotion.

Experiments were conducted to formulate a satisfactory hand and face lotion containing lanolin and having the following properties: (1) not greasy, (2) not sticky, (3) moderately thick, (4) rub into skin completely, (5) soothing and protective, (6) pleasing appearance, (7) suitable odor, and (8) inexpensive to make.

Samples of 100 cc. each were prepared using self-emulsifying glyceryl monostearate, stearyl or cetyl alcohol, anhydrous lanolin or cottonseed oil or mineral oil and distilled water. In some of the samples, glycerin, alcohol and triethanolamine were also used. In some propylene glycol was used. In others propylene glycol and alcohol were used, and a few contained propylene glycol, alcohol and triethanolamine. Stearic acid was used in one sample along with stearyl alcohol. In several of the samples both cetyl and stearyl alcohols were omitted from the lotion but stearic acid was used.

The samples that seemed to be most suitable were observed at various intervals of time. The best sample was selected, a larger amount of it was prepared and a 300-day storage test at 35° F., 94° F. and at room temperature (72–78° F.) was made.

The sample selected as most suitable had all of the desirable properties listed above. It was of a creamy white appearance. After 300 days' storage at 35° F. there was no change observable in color, appearance or properties. At 94° F. the preparation gradually darkened in color up to 110 days, after which there seemed to be no further darkening. The final color was a cream shade rather than pure white, but was not objectionable. At room temperature there was no observable change for 190 days. At 300 days there was very slight darkening in color.

The formula of the selected sample is as follows:

Glyceryl monostearate, self-emulsifying	35 Gm.
Stearic acid	25 Gm.
Propylene glycol	50 cc.
Anhydrous lanolin	10 Gm.
Alcohol	50 cc.
Triethanolamine	10 cc.
Perfume	1 cc.
Distilled water, *q. s.*	1000 cc.

1. Melt and bring to 90° C. the glyceryl monostearate, stearic acid, propylene glycol, anhydrous lanolin, and 100 cc. of distilled water.
2. Place the triethanolamine and 50 cc. of distilled water in a beaker and heat to 90° C.
3. Add (2) to (1) in a slow stream while stirring (by hand).
4. Add gradually, while stirring (by hand) enough distilled water to make 949 cc.
5. Dissolve the perfume in the alcohol.
6. Add (5) to (4) when (4) is cool.

Summary

1. Experiments were conducted to formulate a satisfactory hand and face lotion containing lanolin.

2. The formula and directions are given for preparing the most suitable preparation found.

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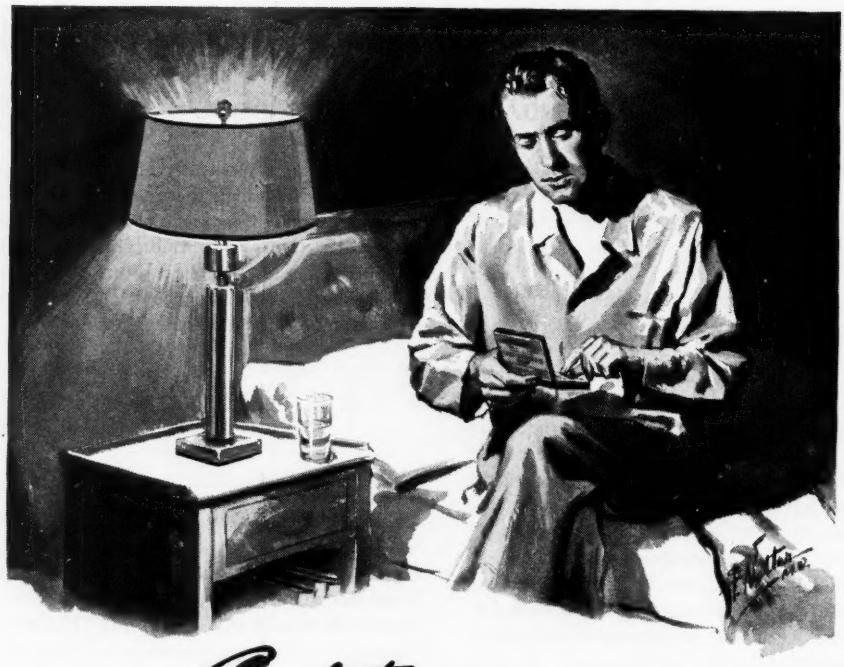
* Professor of pharmacy, Purdue University, School of Pharmacy.

Presented to the Section on Practical Pharmacy, AMERICAN PHARMACEUTICAL ASSOCIATION, 1946 meeting.



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Yes, Mr. Druggist, your customers *rely* on the quality of the merchandise you sell just as they rely on the judgment of their physician. Safety is a fundamental of good pharmacy, and quality is the basis of safety. Armour has been associated always with quality, purity and accurate standardization. Animal products are perishable products, and Armour knows how important it is to take every precaution to insure their safety. The tremendous supply of fresh raw material, and experience in this field makes the Armour Laboratories a leader in this field.

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D·A·B·S multi-vitamin capsules
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It pays to stock, dispense and feature a full line of ARMOUR preparations.

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PRESCRIPTION Information SERVICE

PERU BALSAM INCOMPATIBILITY

I have been unable to obtain a clear solution from the following formula. Any information will be greatly appreciated

Biebrich scarlet red	1 to 2 %
Oil eucalyptus	3 %
Oil camphor	5 %
Chlorthymol	0.2%
Phenol	1 %
Menthol	0.5%
Balsam peru	2 %
Oil cade	2 %

Cotton seed oil, q. s.

—J. H., Colorado

It has been our experience that if the balsam is first triturated with castor oil, using sufficient castor oil to make about 25% of the finished product, the remainder of the ingredients will dissolve and make a fairly stable preparation. A sample we have prepared has shown no separation of the balsam after standing several days.

FOOT ASTRINGENT

What is the proper way to fill the following prescription for foot astringent and what is the chemical reaction in its preparation? I experimented with two ounces of ferric chloride tincture and after the addition of eight ounces of phosphoric acid dilute, a yellow tint was still present in the mixture.

Ferric chloride tincture ..... *8 oz.*
Phosphoric acid dilute, q. s. to decolorize

—L. S., Wisconsin

Ferric chloride reacts with phosphoric acid to form ferric phosphate, which is colorless or nearly colorless. Ferric phosphate is practically insoluble in neutral solutions, but soluble in an excess of phosphoric acid. Probably the physician expected you to add a calculated amount of phosphoric acid to the ferric chloride tincture sufficient to convert it to ferric phosphate, and then add a sufficient amount of phosphoric acid in addition to dissolve the precipitate. It was probably not the expectation of the physician that the solution would become colorless, but that it would change from the reddish-brown color of the tincture to a light yellow color.

INDIAN ROOT

What is the medicinal herb known as Indian root or toothache root? Is it a local anesthetic?—A. G., Louisiana

Common names, such as these, are generally unreliable in identifying plants. The term Indian root, however, is applied to American spikenard, *Aralia racemosa*. Toothache root is apparently more commonly used for a related species, *A. spinosa*. The American spikenard is indigenous to Nebraska and it is probable that the name toothache root in this case also applies to that species.

Nothing in the literature suggests that this plant has local anesthetic properties. Although the root is not credited with much medicinal value, according to the *U. S. Dispensatory*, it is a component of compound white pine syrup, N. F. There is limited trade in the root and it is listed in catalogs of products handled by dealers in crude drugs.

ISOPROPYL ALCOHOL IN DRUGS

Would you advise us whether isopropyl alcohol is used in extracting drugs for administration internally? Can you confirm that isopropyl is used as a granulating fluid in manufacturing pharmaceutical tablets?—J. P., Minnesota

Neither the National Formulary nor the U. S. Pharmacopœia specifically permits the use of isopropyl alcohol for this purpose. Both do permit, however, the use of alcohol denatured

A new MALTBIE product which meets the newer concepts of diarrheal control in that it is both palliative and corrective.

LUBISMIN relieves the painful colic associated with diarrhea and restores normal physiological function without rebound constipation.

Intensive detailing to physicians and extensive advertising now being conducted.

LUBISMIN is available through your wholesaler in 4 ounce, pint and gallon bottles.

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with not more than 10% of methanol or acetone for manufacturing preparations in which alcohol is used as a solvent only and does not remain in the finished product. If, as you state, isopropyl alcohol is sometimes used as a granulating fluid in manufacturing tablets, it is believed that none would remain in the finished product.

Among others, Dr. A. J. Lehman of the Wayne University College of Medicine has conducted an extensive study on the acute and chronic toxicity of isopropyl alcohol (*J. Lab. Clin. Med.*, 29: 561–7, 1944). It was concluded that isopropyl alcohol is approximately twice as lethal as ethyl alcohol. The time may come when isopropyl alcohol will be used as a solvent for pharmaceutical preparations intended for internal administration, but at this time its use should be restricted to manufacturing where it is completely removed in the final product.

SUNTAN OIL

Please send us a formula for a good suntan oil. We should like to have a formula containing iodine, lanolin and possibly mineral oil.—M. F., Florida

We have been unable to find a sun tan oil preparation in the literature containing iodine and lanolin. Furthermore we would be hesitant to use iodine in this manner. A formula for suntan cream that contains lanolin, and which is reputed to be effective, is as follows:

Isobutyl *p*-aminobenzoate	1.5 parts
Sesame oil	15.0 parts
Absorption base, aquaphor type	25.0 parts
Lanolin	3.0 parts
Water	55.5 parts
Antioxidant, color and perfume, *q. s.*	100.0 parts

You will also find a formula for sun cream in the National Formulary.

In *The Chemistry and Manufacture of Cosmetics* by deNavarre (D. Van Nostrand Co., 250 4th Ave., New York City 3) there appears background material in which you may be interested.

STAINLESS IRON COMPOUND

Do you know of an iron compound which when incorporated into a tonic will not stain the teeth of the patient?—R. D., New York

It is our understanding that the scale salts, such as iron and ammonium citrate, do not have this undesirable effect.

1. FAST
Dermesthetic Ointment contains benzyl alcohol, which works fast but doesn't last. So the second agent takes over . . .

2. OVERLAPPING
Phenol offers intermediate relief—with moderately prolonged effect. And it in turn is overlapped by the third agent . . .

3. PROLONGED
Benzocaine, which has already begun to soothe the affected areas, continues to relieve itching over a prolonged period.

NEW TRIPLE-ACTION ITCH RELIEF!

CUTTER DERMESTHETIC OINTMENT* gives 3-phase control of pruritus! Acts fast—medium—slow! It relieves itching at once! It prolongs the soothing effect! It minimizes psychic trauma.

And here's the reason why...Cutter Dermesthetic Ointment provides three anesthetic properties with overlapping action.

Fast-acting, long-lasting Dermesthetic Ointment stops itching caused by poison ivy, poison oak, insect bites, industrial rashes and other pruritic conditions. Greaseless, it does not dissolve and spread oil-soluble irritants. It can be removed easily, will not stain skin or clothes.

While not intended as a bactericidal agent, Dermesthetic Ointment with its benzyl alcohol and phenol content is bacteriostatic. This bacteriostatic action, in combination with the quick, lasting relief from pruritus, helps to avoid possible infection from scratching.

Try it, won't you? Clinical samples will be sent on request.

*Cutter's trade name for Anesthetic Ointment

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Fine Biologicals and Pharmaceutical Specialties

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Prevention... Diagnosis ...Therapy

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U.S.P. XIII

CALCIUM IODOBEHENATE
CHINIOFON
CHINIOFON TABLETS
DILUTED HYDRIODIC ACID
HYDRIODIC ACID SYRUP
IODINE
STRONG IODINE SOLUTION (LUGOL'S)
IODINE TINCTURE
IODIZED OIL
IODOPHTHALEIN SODIUM
IODOPYRACET INJECTION
SODIUM IODIDE
POTASSIUM IODIDE

N.F. VIII

AMMONIUM IODIDE
FERROUS IODIDE SYRUP
IODINE AMPULS
IODINE OINTMENT
IODINE SOLUTION
PHENOLATED IODINE SOLUTION
STRONG IODINE TINCTURE
IODOCHLOROHYDROXYQUINOLINE
IODOCHLOROHYDROXYQUINOLINE TABLETS
IODOFORM
POTASSIUM IODIDE SOLUTION
POTASSIUM IODIDE TABLETS
COLLOIDAL SILVER IODIDE
SODIUM IODIDE AMPULS
THYMOL IODIDE
YELLOW MERCUROUS IODIDE
YELLOW MERCUROUS IODIDE TABLETS

NOTICE

NEW NAMES FOR IODINE TINCTURES

IODINE TINCTURE
U.S.P. XIII (2%)
(Formerly official in U.S.P. XII as Mild Tincture of Iodine)

STRONG IODINE TINCTURE
N.F. VIII (7%)
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Iodine Educational Bureau, Inc.

120 Broadway, New York 5, N. Y.

Typical Days

FROM THE SECRETARY'S JUNE DIARY

—2nd—

ON THIS day the House of Representatives passed H. R. 3215 creating the Medical Service Corps in the United States Army with a Pharmacy Section in both Army and Navy. This is the first of two important hurdles to place this legislation on the statute books and there are great hopes that it will fill a long-felt need for both the Army and Navy and for the pharmacists of the United States.

—3rd—

A long and friendly conference with Surgeon General Bliss of the Army and found him most helpful in his understanding of the aims and objectives of pharmacy. Much of the afternoon spent with George H. Hyde, who had come to photograph the A. PH. A. staff at work and take some shots of the building to be used in a Squibb publication.

—5th—

Today a meeting with Louis Zopf, chairman of the Scientific Section, and Lloyd Hazleton, chairman of a special committee to discuss scientific section problems. To lunch with Zopf and Hazleton at the Watergate Inn with Drs. Powers and Green joining, and then to continue the work on planning suggested changes in the by-laws of the sections, which will give necessary autonomy and yet retain the organizational strength that comes from unity and cooperative effort toward a common objective.

—6th—

Meeting with the Steering Committee of the Committee on Status of Pharmacists in Government Service with Einbeck, DuMez and Frates present. Joined at lunch by Dr. Powers and then a heavy afternoon with Major Einbeck formulating the letters and briefs decided upon at the morning session.

—7th—

Early to the office on Saturday morning, quickly reviewing the mail and attending to necessary chores before departing on the 11 o'clock train for Northern New Jersey, meeting Mary Switzer of the Federal Security Agency, who was enroute to the A. M. A. convention. By automobile to Atlantic City to view the display which has been installed among the scientific exhibits depicting the National Formulary and its laboratory and other research background. In the evening to a dinner given by the trustees of the American Medical Association to related organizations as a part of the centennial celebration of this great body. Of the three splendid addresses by Basil O'Connor, General Omar Bradley and Presi-

(*Continued, page 423*)

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"Treatment for a deficiency involves administration . . . of large enough doses of the vitamin to be of therapeutic value and continuation of this treatment for long enough periods to assure a satisfactory therapeutic trial."*

*Council on Foods and Nutrition. Vitamin Deficiencies. Stigmas, Symptoms and Therapy. J.A.M.A. 131:666, (June 22) 1946

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Riboflavin (B_2)	5 mg.
Niacinamide	100 mg.
Pyridoxine HCl (B_6)	0.1 mg.
Calcium Pantothenate	10 mg.
Ascorbic Acid (C)	100 mg.

Plus additional factors of the vitamin B complex present in liver B fraction and yeast.

Coated, hexagonal tablets of distinctive appearance and pleasing flavor and odor. Bottles of 100.

Fair traded at full list price: Bottles of 100 $7.50

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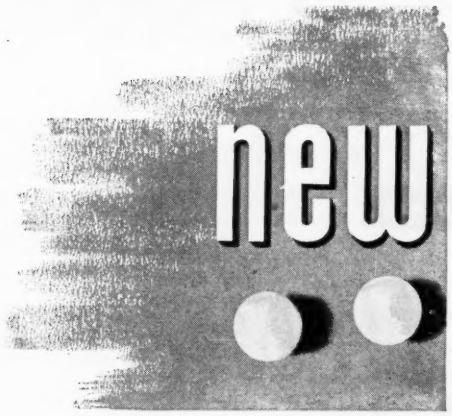

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For Prolonged Intra-Oral Penicillin Therapy

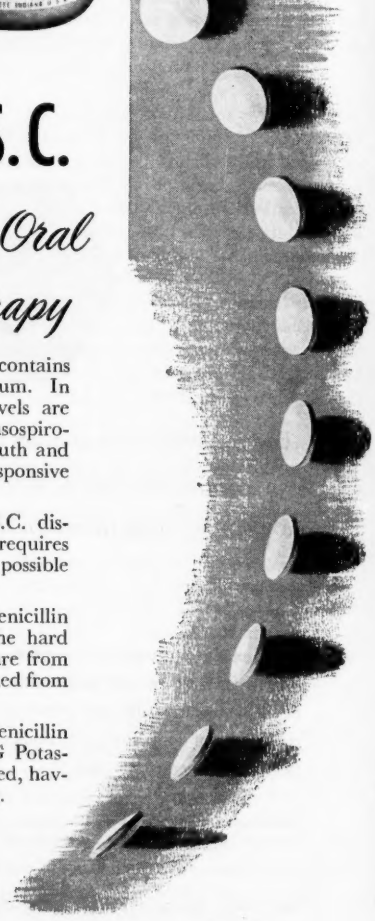
HIGH POTENCY. Each Penicillin Troche-C.S.C. contains 5,000 units of Crystalline Penicillin G Potassium. In consequence relatively high penicillin saliva levels are attained for maximal therapeutic efficacy in fusospirochetal (Vincent's) infection of the gingivae, mouth and pharynx, and certain other oral infections responsive to penicillin.

SLOW DISINTEGRATION. Penicillin Troches-C.S.C. dissolve slowly within the mouth, a process which requires from one to two hours. Thus prolonged action is possible from a single troche.

ADHERES TO PALATE. Lenticular in shape, Penicillin Troches-C.S.C. readily fit into the curve of the hard palate, adhering to the mucosa on gentle pressure from the tongue. A penicillin depot is thereby established from which the antibiotic diffuses into the saliva.

CRYSTALLINE POTASSIUM PENICILLIN G. Penicillin Troches-C.S.C. contain Crystalline Penicillin G Potassium Salt. This form of penicillin is highly purified, having a potency of not less than 1435 units per mg.

Your wholesaler can supply you with Penicillin Troches-C.S.C. In bottles of 25.



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dent Prentiss of the Armstrong Cork Co., the last was easily the most spectacular. It is well worth a reading in the *Journal of the American Medical Association.*

—9th—

A busy day at the Atlantic City Convention Hall visiting the scientific and commercial exhibits and listening intently to the symposium on cancer and treatment of cardiac cases. The scientific exhibits were outstanding in every way and the commercial exhibits were far ahead of the scientific exhibits of some years ago. In the evening to meet Dr. and Mrs. Green, who brought the mail from Washington.

—10th—

Early to the convention hall to listen to the world's largest organ played by a very competent organist who obliged with many request numbers prior to the reopening of the exhibits and glad to meet Dr. Sheppard, Washington ophthalmologist. And now by automobile from Atlantic City to Washington via the Pennsville ferry and working late at the office to prepare for a busy forenoon tomorrow.

—11th—

Busy with the staff until 10 o'clock and then departing by automobile for Hot Springs, Va., where the American Drug Manufacturers' Association has gathered for its annual convention. Unfortunately this meeting and the convention of the A. M. A. occurred simultaneously, making it very difficult for those who have responsibilities with both

—12th—

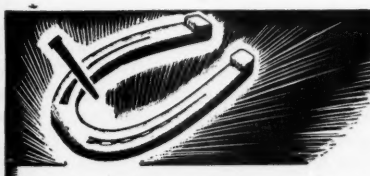
All morning at the final meeting of the A. D. M. A., listening to a splendid talk by Donald Richberg on labor relations as well as excellent reports by Frank Taylor and Dr. Sharp on the work of the Contact Committee and the medical directors of the drug industry and the activities of other groups within the organization. An opportunity to meet such important members of the industry as Winthrop's J. G. Noh, Pfizer's Fred Stock, Abbott's Edgar Carter, Norwich's D. M. Copley, S. K. & F.'s John Hammer, Fitzgerald Dunning of Hynson, Westcott & Dunning, Drs. Sharpe and Taylor of Parke, Davis Co., Mr. John Zinsser and Dr. Paul Pittenger of Sharp & Dohme, Thurston Merrill of Wm. S. Merrell & Co., Les Harrop, A. D. M. A. Counsel, Carson Frailey, Executive Vice-President of the Association, and Fred Cullen of the Proprietary Association.

—14th—

All day at the office with plenty of opportunity to work without interruption and finish the pre-convention bulletins. A telephone conversation with Surgeon-General Parran on the progress of the hearing before congressional committees dealing with the World Health Organization and another telephone conversation with H. A. B. Dunning on plans for the dedication of the Memorial Flagstaff.

—17th—

Today joined Secretary Lull of the A. M. A., and



FOR WANT OF A NAIL A SHOE WAS LOST!

And, in some instances today, for want of an Alkaloidal ingredient, a product has been taken off the shelves.
Similar situations might be avoided by anticipating needs well in advance, by placing orders with us immediately, and by allocating requirements over a reasonable period of time.

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*Cinchonidine
*Cinchonine
Colchicine Salicylate
Colchicine U.S.P.
Digitalin, N.N.R. (so-called german)
Digitonin
Elaterium
Emetine Bismuth Iodide
Emetine Hydrochloride U.S.P.
Ephedrine Alkaloid U.S.P. (Natural)
Ephedrine Hydrochloride U.S.P. (Natural)
Ephedrine Sulphate U.S.P. (Natural)
Eserine Alkaloid
Eserine Salicylate U.S.P.
Eserine Sulphate U.S.P. VIII
Helenin
Histamine Dihydrochloride
Histidine Mono Hydrochloride
Homatropine Hydrobromide U.S.P.
Homatropine Hydrochloride
Homatropine Sulphate
Hydrastine Alkaloid U.S.P. IX
Hydrastine Hydrochloride N.F.
Hydrastine Sulphate
Hyoscine Hydrobromide U.S.P.
Hyoscyamine Alkaloid
Hyoscyamine Hydrobromide U.S.P. X
Hyoscyamine Sulphate
Lobeline Sulphate
Ouabain U.S.P. (Strophanthin (G))
Physostigmine (See Eserine)
Picrotoxin U.S.P.
Pilocarpine Alkaloid
Pilocarpine Hydrobromide
Pilocarpine Hydrochloride N.F.
Pilocarpine Nitrate U.S.P.
Pilocarpine Salicylate
Pilocarpine Sulphate
Podophyllin N.F.
Quassin
*Quinidine Sulphate U.S.P.
*Quinine Hydrochloride U.S.P.
*Quinine Sulphate U.S.P.
Salicin
Sanguinarine Nitrate
Sanguinarine Sulphate
Santonin N.F.
Saponin
Scopolamine Hydrobromide (See Hyoscine)
Sparteine
Sparteine Camphosulphonate
Sparteine Sulphate N.F.
Strophanthin (K) U.S.P.
*Totaquine U.S.P.
Veratrine
Veratrine Hydrochloride
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other distinguished representatives of medicine, public health and the lay public in appearing before the House Committee on International Affairs in support of the resolution which will place the United States Government behind the approval of the World Health Organization and will mean so much in bringing the various nations together in a common purpose that all can endorse. At the end of the day a brief staff gathering to say goodbye and wish Godspeed to Leah Jones who leaves the staff to become the wife of a soldier now stationed in Alaska. The parting gift was a traveling bag filled with goodwishes. And now on the 6 o'clock train for Chattanooga.

—18th—

Early to the Hotel Patten in Chattanooga where Charles Evans and Tom Sharp were already imbibing Coca-Cola. A chat with Professional Relations Committee Chairman Evans and later to the meeting of the Tennessee Pharmaceutical Association whose members patiently listened to what we had to say on pharmacy in the affairs of the nation. Now a pleasant drive to the various mountains around Chattanooga with former president and Mrs. Charles Evans, the latter now President of the Woman's Auxiliary of the A. PH A., accompanied by Miss Elizabeth White of Nashville, a most charming hospital pharmacist connected with Vanderbilt University Hospital Later a chat with Dean Crowe of the University of Tennessee College of Pharmacy before departing on the 7 o'clock train.

—19th—

Working all morning on the train, reading and writing and finally arriving at Washington an hour late, but still in time to hustle to the Mayflower Hotel where the District of Columbia Pharmaceutical Association was in session and listened to the same speech we gave the day before. In the evening to the banquet of this fine organization where Paul Briggs presided.

—25th and 26th—

The regular routine interspersed with emergency activity endeavoring to keep the controls on quinidine so that this necessary cardiac drug will not be dissipated by premature removal of restrictions. The brunt of the legislative work on these restrictions falls to Senator Sherman Cooper of Kentucky.

—27th—

Today came R. Lincoln McNeil, Mervin Rosenberger, H. A. K. Whitney and Leroy Weidle to confer with Director Edward C. Elliott of the Pharmaceutical Survey regarding problems encountered by the Survey which bear directly on the future of pharmacy. This committee, appointed by the Council, represents manufacturing pharmacy, wholesaling, hospital pharmacy and prescription practice in addition to such representation of the combined views of various groups within the A. PH. A. as can be supplied by its secretary.